COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Valley Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Virginia Metalcrafters, Inc.
1010 East Main Street
Waynesboro, Virginia
Permit No. VRO80518

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Virginia Metalcrafters, Inc. has applied for a renewal of a Title V Operating Permit for its metal castings manufacturing facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:_____ Date:

Air Permit Manager:_____ Date:

Regional Permit Manager:_____ Date:

FACILITY INFORMATION

Permittee
Skyline Acquisition Corporation
1010 East Main Street
Waynesboro, Virginia 22980

Facility
Virginia Metalcrafters, Inc.
1010 East Main Street
Waynesboro, Virginia 22980

Plant Identification Number: 51-820-0066

SOURCE DESCRIPTION

SIC 3366 - Copper Foundries
SIC 3499 - Fabricated Metal Products, Not Elsewhere Classified
SIC 3321 - Gray and Ductile Iron Foundries
SIC 3365 - Aluminum Foundries

Virginia Metalcrafters, Inc. is involved in the manufacturing of metal castings and wood gifts. Brass, bronze, aluminum, and iron castings are made by melting ingots in electric induction furnaces, then pouring the molten metal into sand molds. The castings are shaken from the molds and the sand is recycled. The castings are then cleaned by shotblasting and/or grinding and polishing, followed in some cases by vapor degreasing, welding or soldering, acid pickling, and painting in a spray booth.

The facility is a Title V major source of volatile organic compounds (VOC), PM-10, and hazardous air pollutants (HAPs). This source is located in an attainment area for all pollutants, and is a PSD minor source. The facility was previously permitted under a minor NSR permit issued on January 11, 2005.

COMPLIANCE STATUS

The facility is inspected once a year.

The facility was last inspected on August 25, 2004, and was determined to be in compliance.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following :

Table I. Significant Emission Units

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Iron Foundry							
33A	V33	Sand Processing (Constructed before 1972)	2400 lbs/hr	Wheelabrator 126-D Fabric Filter	BH33	PM PM-10	-
33B	V33	Furnaces (2) (Constructed before 1972)	1000 lbs/hr	Wheelabrator 126-D Fabric Filter	BH33	PM PM-10	-
33C	V33	Tumble Shot Blast (Constructed before 1972)	3200 lbs/hr	Wheelabrator 126-D Fabric Filter	BH33	PM PM-10	-
33D	V33	Degate, Grind, Deburr (Constructed before 1972)	3200 lbs/hr	Wheelabrator 126-D Fabric Filter	BH33	PM PM-10	-
24	V24	Rotary Shot Blast (Constructed before 1972)	3200 lbs/hr	Pangborn 220 CK-1 Fabric Filter	BH24	PM PM-10	-
31	Vented inside	Metal Casting (Constructed before 1972)	1000 lbs/hr	-	-	-	-
32	Vented inside	Mold Shakeout Operations (Constructed before 1972)	1000 lbs/hr	-	-	-	-
Brass Foundry							
44A	V44	Furnaces (2) (Constructed before 1972)	1600 lbs/hr	Wheelabrator 65KD Fabric Filter	BH44	PM PM-10	-
42	V42	Shot Blast (Constructed before 1972)	3200 lbs/hr	Pangborn 600 CN Fabric Filter	BH42	PM PM-10	-
44B	V44	Degate, Grind, Deburr (Constructed before 1972)	3200 lbs/hr	Wheelabrator 65KD Fabric Filter	BH44	PM PM-10	-
19	Vented inside	Metal Casting (Constructed before 1972)	1600 lbs/hr	-	-	-	-
20	Vented	Mold Shakeout Operations	1600 lbs/hr	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
	inside	(Constructed before 1972)					
79	V61, V62, V63, V79	Polishing, Buffing, Coloring (Constructed before 1972)	4000 lbs/hr	13 Cyclones	DC79	PM PM-10	-
Degreasing							
78	Vented inside	Vapor Degreaser (Constructed before 1972)	1300 lb metal/hr	Primary Condenser Freeboard Refrigeration Device	-	VOC TCE	-
Surface Coating							
64	V64	Black Paint Spray Booth (Modified in 1994)	12 gallons/hr	Research Products Corp. Paint Arrestor Filter	F64	PM PM-10	1/11/05
54	V54	Verdi Paint Spray Booth (Constructed before 1972)	10 gallons/hr	Binks AF Filter Paint Arrestor Filter	F54	PM PM-10	-
55	V55	Brass Clear Lacquer Spray Booth (Constructed before 1972)	4 gallons/hr	Research Products Corp. Paint Arrestor Filter	F55	PM PM-10	-
72	V72	Wood Lacquer Spray Booth (Constructed before 1972)	3 gallons/hr	Binks AF Filter Paint Arrestor Filter	F72	PM PM-10	-
73	V73	Wood Lacquer Spray Booth (Constructed before 1972)	3 gallons/hr	Research Products Corp. Paint Arrestor Filter	F73	PM PM-10	-

EMISSIONS INVENTORY

A copy of the 2003 annual emission update is attached as Attachment A. Emissions are summarized in the following tables.

Table II. 2003 Actual Criteria Pollutant Emissions

	Criteria Pollutant Emissions (tons/yr)				
	VOC	CO	SO_2	PM-10	NO_x
Fuel Burning Equipment	0.02	0.31	0.0	0.01	0.37
Iron Foundry	0.09	-	-	0.34	-
Brass Foundry	0.28	-	-	0.95	-
Degreasing	6.10	-	-	-	-
Surface Coating	5.10	-	-	-	-
Woodworking	-	-	-	0.0	-
Total	**11.59**	**0.31**	**0.0**	**1.3**	**0.37**

Table III. 2003 Actual Hazardous Air Pollutant Emissions

Pollutant	Hazardous Air Pollutant Emissions (tons/yr)
Trichloroethylene (CAS # 79-01-6)	6.10

CHANGES SINCE INITIAL PERMIT

Changes from the initial Title V permit are:

- Removal of 7.0 mmBTU/hr natural gas-fired boiler as an emission unit (now classified as an insignificant activity)
- Removal of woodworking equipment
- Update of references to current NSR permit
- Removal of the limitation regarding toxic pollutants under the Surface Coating section
- Removal of the requirement to calculate PTE for the Halogenated Solvent Cleaning MACT in the Degreasing section
- Added Hazardous Air Pollutant Conditions section for 40 CFR 63 Subparts MMMM and EEEEE
- Update of General Conditions with current boilerplate language

These changes are discussed in more detail below.

EMISSION UNIT APPLICABLE REQUIREMENTS

Fuel Burning Requirements - Unit # 76

Virginia Metalcrafters is currently operating a 7 mmBTU/hr boiler that is fired only on natural gas. The distillate oil tanks have been removed from the facility. According to 9 VAC 5-80-720 C, fuel burning equipment with heat input levels below 10 mmBTU/hr and using natural gas are considered an insignificant activity. Therefore, the Fuel Burning Section has been removed from the permit and the boiler has been included as an insignificant activity in Section VIII.

Iron Foundry Requirements - Units # 33A, 33B, 33C, 33D, 24, 31, and 32

Limitations

The iron foundry equipment in operation at Virginia Metalcrafters is grandfathered, and is not permitted. Currently, the units are subject to the following regulations that have been incorporated into the permit:

9 VAC 5-40-80: Visible emission standard for all existing equipment. Visible emissions from each iron foundry stack (Stack # V33 and V24) shall not exceed 20% except during one six-minute period in any one hour in which visible emission shall not exceed 60%.

9 VAC 5-40-2410: Limit on particulate emissions from secondary metal operation. Particulate emissions from the two furnaces (Unit # 33B), metal casting (Unit # 31), and mold shakeout (Unit # 32) shall not exceed 3.05 lbs/hr.

9 VAC 5-40-260: Limit on particulate emissions for process units. Particulate emissions from Units # 33A, 33B, 33C, 33D, and 24 shall not exceed the limit calculated by the following formula:

$$E = 4.10 x P^{0.67}$$

..... Equation 3

Where:

E = emission rate (lb/hr)
P = process weight rate (tons/hr). Process weight rate means a rate established as follows:

a. For continuous or long-run steady-state process operations, the total process rate for the entire period of continuous operation or for a typical portion of it, divided by the number of hours of such period or portion of it.

b. For a cyclical or batch process operations, the total weight for a period that covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such a period.

The permit contains a requirement for the following equipment to maintain a baghouse to control particulate emissions: sand processing; furnaces; tumble shot blast; degate, grind, deburr; and, rotary shot blast. This requirement was added to ensure that the equipment was able to operate in compliance with 9 VAC 5-40-260 and 9 VAC 5-40-2410.

It should also be noted that no visible emission standard has been included for the metal casting and mold shakeout operations. This equipment is vented inside the building. A condition has been added to the Title V permit stating that the equipment can only be vented inside the facility.

Monitoring and Recordkeeping

Per 40 CFR Part 64, Compliance Assurance Monitoring (CAM) applies to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant;

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Virginia Metalcrafters' potential pre-control device emissions for PM from the iron foundry are less than the Title V major source threshold of 100 tons per year. The iron foundry has no other emission limitations for other pollutants. Therefore, the iron foundry does not meet the criteria for CAM applicability. The baghouse for the iron foundry is still subject to the periodic monitoring requirements in 40 CFR Part 70 (Title V).

The iron foundry equipment in operation at Virginia Metalcrafters is required to meet particulate

emission limits that are dependent upon the process weight of the material being processed. The resulting emission limits (as calculated at maximum capacity of the equipment) are not very stringent. The emission limits are as follows:

Table IV. Emission Limits for Iron Foundry Operations when Operating at Maximum Capacity

Emission Unit Description	Emission Unit ID	Rate Capacity (tons/hr)	Predicted Emission Rate (lbs/hr)	Emission Limit (lbs/hr)
Sand Processing	33A	1.2	0.04	4.63
Furnaces (2)	33B	0.5	0.01	3.05
Tumble Shot Blast	33C	1.6	0.27	5.62
Degate, Grind, Deburr	33D	1.6	0.27	5.62
Rotary Shot Blast	24	1.6	0.27	5.62
Metal Casting	31	0.5	2.10	3.05
Mold Shakeout Operations	32	0.5	1.60	3.05

All units except for the metal casting and mold shakeout operations are vented through baghouses that are used to control particulate emissions. As long as the particulate emissions are vented through a properly operating control device, the standards are easily obtained. Therefore, as long as the fabric filters are properly maintained and operated, there is little likelihood of the particulate emission standards being violated.

The metal casting and mold shakeout operations are vented inside the building, and the air is not passed through any particulate control devices prior to being returned to the facility. The particulate emission rate for metal casting when the unit is operating at maximum capacity is 2.10 lbs/hr - 60% of the standard. The particulate emission rate for mold shakeout operations when operating at maximum capacity is 1.60 lbs/hr - 52% of the standard. Therefore, as long as the metal casting and mold shakeout operations are not operated at greater than their respective maximum capacities, there is little likelihood of the particulate emission standards being violated.

Calculations are included in Attachment C that illustrate the particulate emission rate when all units are being operated at maximum capacity. The calculations for predicted particulate emission rates were performed using AP-42 emission factors.

If particulate control devices, such as baghouses and cyclones, are operating properly there should

be no visible emissions from the units. This is the case because the devices eliminate the particulates, which are the source of the visible emissions. Therefore, if visible emissions are seen from an iron foundry stack it can be reasonably assumed that there is a problem with one of the control devices. Virginia Metalcrafters will be required to perform weekly inspections of each iron foundry stack. This inspection will include an observation of the presence of visible emissions. If visible emissions are found, Virginia Metalcrafters can either determine the cause of the visible emissions, take corrective action, and return the stack to no visible emissions or perform a VEE. The VEE is to last for six minutes. If however, any readings during the six minutes are greater than the 20% opacity standard, the VEE must be continued for a total of sixty minutes to demonstrate compliance with the opacity standard. If twelve weekly inspections show no visible emissions for a given stack, then the monitoring requirement drops to monthly. If visible emissions are seen during a monthly inspection, then the monitoring frequency is to return to weekly.

Visible emissions have been selected as the indicator because they are indicative of good operation and maintenance of a baghouse. If the baghouse is not functioning properly, visible emissions will be present and there is a chance that Virginia Metalcrafters is in danger of not meeting the particulate emission limits. Therefore, visible emissions are an acceptable performance indicator.

The weekly inspections will also satisfy the periodic monitoring requirement for the visible emission limitation. Frequent checks for visible emissions will limit malfunctions of the control equipment. As long as the control equipment is operating properly, there is little likelihood of violating the visible emission limitation. The control equipment will limit the amount of particulates that are emitted thereby limiting visible emissions.

Virginia Metalcrafters is required to maintain records of process weight rate and baghouse inspection records.

Recordkeeping and periodic inspections of each iron foundry stack satisfy the periodic monitoring requirement for the iron foundry equipment.

Testing

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included in the permit for the iron foundry.

Streamlined Requirements

There are no streamlined requirements.

Brass Foundry Requirements - Units # 44A, 44B, 42, 19, 20, and 79

Limitations

The brass foundry equipment in operation at Virginia Metalcrafters is grandfathered, and is not permitted. Currently, the units are subject to the following regulations that have been incorporated into the permit:

9 VAC 5-40-80: Visible emission standard for all existing equipment. Visible emissions from each brass foundry stack (Stack # V44, V42, V61, V62, V63, and V79) shall not exceed 20% except during one six-minute period in any one hour in which visible emission shall not exceed 60%.

9 VAC 5-40-2410: Limit on particulate emissions from secondary metal operation. Particulate emissions from the two furnaces (Unit # 44A), metal casting (Unit # 19), and mold shakeout (Unit # 20) shall not exceed 4.04 lbs/hr.

9 VAC 5-40-260: Limit on particulate emissions for process units. Particulate emissions from Units 42, 44B, and 79 shall not exceed the limit calculated by the following formula:

$$E = 4.10 x P^{0.67}$$

..... Equation 4

Where:

E = emission rate (lb/hr)

P = process weight rate (tons/hr). Process weight rate means a rate established as follows:

a. For continuous or long-run steady-state process operations, the total process rate for the entire period of continuous operation or for a typical portion of it, divided by the number of hours of such period or portion of it.

b. For a cyclical or batch process operations, the total weight for a period that covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such a period.

The permit contains a requirement for the following equipment to maintain a baghouse or cyclone to control particulate emissions: furnaces; shot blast operations; degate, grind, deburr; and, polish, buffing and coloring. This requirement was added to ensure that the equipment was able to operate in compliance with 9 VAC 5-40-260 and 9 VAC 5-40-2410.

It should also be noted that no visible emission standard has been included for the metal casting and mold shakeout operations. This equipment is vented inside the building. A condition has been added to the Title V permit stating that the equipment can only be vented inside the facility.

Monitoring and Recordkeeping

Per 40 CFR Part 64, Compliance Assurance Monitoring (CAM) applies to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant;

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Virginia Metalcrafters' potential pre-control device emissions for PM from the brass foundry are less than the Title V major source threshold of 100 tons per year. The brass foundry has no other emission limitations for other pollutants. Therefore, the brass foundry does not meet the criteria for CAM applicability. The baghouse for the brass foundry is still subject to the periodic monitoring requirements in 40 CFR Part 70 (Title V).

The brass foundry equipment in operation at Virginia Metalcrafters is required to meet particulate emission limits that are dependent upon the process weight of the material being processed. The resulting emission limits (as calculated at maximum capacity of the equipment) are not very stringent. The emission limits are as follows:

Table V. Emission Limits for Brass Foundry Operations when Operating at Maximum Capacity

Emission Unit Description	Emission Unit ID	Rate Capacity (tons/hr)	Predicted Emission Rate (lbs/hr)	Emission Limit (lbs/hr)
Furnaces (2)	44A	0.8	0.01	4.04

Emission Unit Description	Emission Unit ID	Rate Capacity (tons/hr)	Predicted Emission Rate (lbs/hr)	Emission Limit (lbs/hr)
Shot Blast	42	1.6	0.54	5.62
Degate, Grind, Deburr	44B	1.6	0.27	5.62
Metal Casting	19	0.8	3.36	4.04
Mold Shakeout Operations	20	0.8	2.56	4.04
Polishing, Buffing, & Coloring	79	2.0	1.55	6.52

All units except for the metal casting and mold shakeout operations are vented through fabric filters/cyclones that are used to control particulate emissions. As long as the particulate emissions are vented through a properly operating control device, the standards are easily obtained. Therefore, as long as the fabric filters/cyclones are properly maintained and operated, there is little likelihood of the particulate emission standards being violated.

The metal casting and mold shakeout operations are vented inside the building, and the air is not passed through any particulate control devices prior to being returned to the facility. The particulate emission rate for metal casting when the unit is operating at maximum capacity is 3.36 lbs/hr - 83% of the standard. The particulate emission rate for mold shakeout operations when operating at maximum capacity is 2.56 lbs/hr - 63% of the standard. Therefore, as long as the metal casting and mold shakeout operations are not operated at greater than their respective maximum capacities, there is little likelihood of the particulate emission standards being violated.

Calculations are included in Attachment C that illustrate the particulate emission rate when all units are being operated at maximum capacity. The calculations for predicted particulate emission rates were performed using AP-42 emission factors.

If particulate control devices, such as baghouses and cyclones, are operating properly there should be no visible emissions from the units. This is the case because the devices eliminate the particulates, which are the source of the visible emissions. Therefore, if visible emissions are seen from a brass foundry stack it can be reasonably assumed that there is a problem with one of the control devices. Virginia Metalcrafters will be required to perform weekly inspections of each brass foundry stack. This inspection will include an observation of the presence of visible emissions. If visible emissions are found, Virginia Metalcrafters can either determine the cause of the visible emissions, take corrective action, and return the stack to no visible emissions or perform a VEE. The VEE is to last for six minutes. If however, any readings during the six minutes are greater than the 20% opacity standard, the VEE must be continued for a total of sixty minutes

to demonstrate compliance with the opacity standard. If twelve weekly inspections show no visible emissions for a given stack, then the monitoring requirement drops to monthly. If visible emissions are seen during a monthly inspection, then the monitoring frequency is to return to weekly.

Visible emissions have been selected as the indicator because they are indicative of good operation and maintenance of a baghouse/cyclone. If the baghouse/cyclone is not functioning properly, visible emissions will be present and there is a chance that Virginia Metalcrafters is in danger of not meeting the particulate emission limits. Therefore, visible emissions are an acceptable performance indicator. As added insurance that the cyclones are operated properly, Virginia Metalcrafters is required to perform yearly inspections for structural integrity on each cyclone.

The weekly inspections will also satisfy the periodic monitoring requirement for the visible emission limitation. Frequent checks for visible emissions will limit malfunctions of the control equipment. As long as the control equipment is operating properly, there is little likelihood of violating the visible emission limitation. The control equipment will limit the amount of particulates that are emitted thereby limiting visible emissions.

Virginia Metalcrafters is required to maintain records of process weight rate and baghouse/cyclone inspection records.

Recordkeeping and periodic inspections of each brass foundry stack satisfy the periodic monitoring requirement for the brass foundry equipment.

Testing

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included in the permit for the brass foundry.

Streamlined Requirements

There are no streamlined requirements.

Degreasing Requirements - Unit # 78

Limitations

Virginia Metalcrafters is currently operating a batch vapor cleaning machine that utilizes trichloroethylene (TCE) to clean various metal foundry products. The vapor degreaser is subject to the 40 CFR 63 Subpart T, National Emission Standards for Halogenated Solvent Cleaning (Halogenated Solvent MACT). All limitations from the Halogenated Solvent MACT have been included in the permit. Being subject to the Halogenated Solvent MACT means that the vapor degreaser is also subject to 40 CFR 63 Subpart A, General Provisions. Any applicable limitations from the general provisions have also been included in the permit.

The degreaser was constructed prior to 1972, and is subject to 9 VAC 5-40-80, Standard for Visible Emissions. Visible emissions from the degreaser shall not exceed 20%, except for one six-minute period in which they may not exceed 60%. This requirement has been incorporated into the Title V permit.

Monitoring

Per 40 CFR Part 64 Compliance Assurance Monitoring (CAM), emission limitations or standards proposed after November 15, 1990 pursuant to section 111 or 112 are exempt from CAM (40 CFR §64.2(b)(1)). All applicable monitoring requirements from Subpart T have been included in the permit. Since Subpart T was promulgated on December 2, 1994 under the authority of Section 112 National Emission Standards for Hazardous Air Pollutants (NESHAP), this standard is exempt from CAM requirements, and no additional monitoring has been incorporated into the Title V permit.

The vapor degreaser will emit only TCE, a VOC. Due to the fact that no particulate emissions are expected, no visible emissions are expected. Therefore, there is little likelihood that the visible emission standard will ever be violated. No periodic monitoring is required for visible emission from the degreaser, as only VOC will be emitted.

The Halogenated Solvent MACT contains requirements for continuous compliance. These requirements have been incorporated in the permit. The Halogenated solvent MACT contains adequate monitoring to meet the periodic monitoring requirements, so no additional monitoring has been incorporated into the Title V permit.

Recordkeeping

The Halogenated Solvent MACT contains requirements for recordkeeping, including maintenance of records regarding all monitoring performed and estimates of annual solvent consumption for the vapor degreaser. No additional recordkeeping has been included in the Title V permit.

Testing

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

The Halogenated Solvent MACT requires calculation of PTE for all solvent cleaning machines. This requirement has been completed and it is no longer necessary to include it in the permit.

Reporting

The Halogenated Solvent MACT requires that a source submit annual reports stating that the operators are able to pass the test included in the MACT and an estimate of solvent consumption for the vapor degreaser. The MACT also requires a semi-annual exceedance report. These requirements have been included in the Title V permit.

The MACT requires that the annual report be submitted by February 1 of each year. In accordance with 40 CFR 63.10 (a)(5), this date can be changed to correspond to due dates established for other reports that cover the same time period. The Title V permit requires, in Condition X.D., that an annual compliance certification be submitted by March 1 of each year. Therefore, in accordance with 40 CFR 63.10 (a)(5), the due date for the annual report required in the MACT has been changed to March 1 of each year.

Streamlined Requirements

The initial notification requirements associated with the Halogenated Solvent MACT have not been included in the permit because the source has already completed the notifications.

Virginia Metalcrafters is using compliance option 6 (40 CFR 63.463 (b)(2)) to comply with the MACT. Therefore, any requirements dealing with other compliance options have not been included in the permit.

Surface Coating Requirements - Units # 64, 54, 55, 72, and 73

Limitations

Four of the five paint spray booths (Units 54, 55, 72, and 73) in operation at the facility are grandfathered, and are not permitted. For those units, the only applicable requirement is 9 VAC 5-40-80, Standard for Visible Emissions. The requirement limits visible emissions from the spray booths to 20% except during one six minute period in any one hour in which visible emissions shall not exceed 60%. A requirement to operate paint arrestor filters on each booth has been included in the permit to ensure that the visible emission limit is not exceeded.

The black paint spray booth (Unit # 64) is operating under a minor new source review permit, dated January 11, 2005. The following requirements have been included in the Title V permit (condition numbers refer to the minor new source review permit):

Condition 4:	Limits VOC emissions to an average of 3.5 lbs/gallon, excluding water.
Condition 7:	Limits annual VOC emissions to 7 tons per year.
Condition 3:	Particulate emissions from the black paint spray booth shall be controlled by a spray gun with a minimum 40% solid transfer efficiency and an 85% efficient paint arrestor filter system.
Condition 9:	Limits visible emissions from the black paint spray booth to 5%.
Condition 8:	Limits PM and PM-10 emissions from the black paint spray booth to 6.6 lbs/hr and 2.2 tons/yr. Also, limits VOC emissions to 7.0 tons/yr.
Condition 5:	Limits fugitive VOC emissions by requiring that VOCs shall not be intentionally spilled, discarded to sewers, stored in open containers, or handled in any other manner that would result in evaporation beyond that consistent with air pollution control practices for minimizing emissions.

The limitation regarding Standards for Performance of Toxic Pollutants (9 VAC 5 Chapter 50, Part II, Article 3) has been removed from the Title V permit. This standard has been repealed and replaced with 9 VAC 5 Chapter 60, Article 5. In addition, this condition is not federally enforceable.

A copy of the January 11, 2005 permit can be found in Attachment B.

Monitoring and Recordkeeping

Per 40 CFR Part 64, Compliance Assurance Monitoring (CAM) applies to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria:

(1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant;

(2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and

(3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

Virginia Metalcrafters' spray booths do not use a control device to achieve compliance with any emission limitation. Therefore, the spray booths do not meet the criteria for CAM applicability. The spray booths are still subject to the periodic monitoring requirements in 40 CFR Part 70 (Title V).

Recordkeeping requirements will satisfy the periodic monitoring requirement for the black paint

booth.

Once each month, Virginia Metalcrafters is required to calculate the average VOC content in the coating used for the previous month. Utilizing VOC content data from the certified MSDS sheets for each coating, the following equation will be used to calculate the average VOC content:

$$AC = \frac{\sum_{i=1}^{n} C_i G_i}{\sum_{i=1}^{n} G_i}$$

.....Equation 5

Where:

AC	=	average VOC content of coatings (lb/gal)
C_i	=	VOC content of each coating (i) applied during each month (lb/gal)
G_i	=	number of gallons of each coating (i) applied during each month (gal)

This will satisfy the periodic monitoring requirement for the average VOC content requirement in the permit.

The certified MSDS sheet and coating usage for each month can also be used to calculate the annual VOC emissions from the black paint spray booth. This will be done with the following formula:

$$E = \sum_{i=1}^{n} C_i G_i$$

.....Equation 6

Where:

E	=	VOC emission rate (lb/time period)
C_i	=	VOC content of each coating (i) applied during the time period (lb/gal)

G_i = number of gallons of each coating (i) used during the time period (gal)

Annual emissions shall be calculated as the sum of each consecutive 12-month period. This will satisfy the periodic monitoring requirement for the VOC emission limit contained in the permit.

Virginia Metalcrafters is required to maintain records showing the solids transfer efficiency and the control efficiency of the paint arrestor filter system for the black paint spray booth. Most likely, these records will be either a testing that has been performed or manufacturer's literature that state such values. Once these values are known, the particulate emission rate can be calculated using those values and the solids content of the coating from certified MSDS sheets in the following formula:

$$E = (\sum_{i=1}^{n} P_i G_i D_i)(\frac{100 - T}{100})(\frac{100 - CE}{100})$$

..... Equation 7

Where:

E = particulate emission rate (lb/time period)

P_i = solids content of each coating (i) applied during the time period (lb solids/lb paint)

G_i = number of gallons of each coating (i) applied during the time period (gal)

D_i = density of each coating (i) applied during the time period (lb/gal)

T = transfer efficiency of the spray booth (%)
= 40 [unless records demonstrate a higher value is appropriate]

CE = control efficiency of the paint arrestor filter system (%)
= 85 [unless records demonstrate a higher value is appropriate]

Annual emissions shall be calculated as the sum of each consecutive 12-month period. This will satisfy the periodic monitoring requirement for the particulate emission limit on the black paint spray booth.

No periodic monitoring was included for the hourly particulate emission limits on the black paint spray booth. The limit was established assuming the unit to be operating at maximum capacity. Therefore, as long as the unit does not operate at higher than its maximum capacity, there is little likelihood that the standard will be violated.

A properly operating paint arrestor (filter) will eliminate particulate emissions, which will also eliminate visible emissions, which are caused by particulate emissions. Virginia Metalcrafters will be

required to perform daily inspections of each spray booth filter each day the spray booth is in operation. The inspections will include a check of correct filter placement and filter condition. The daily inspections will reveal potential problems with the filters, thereby allowing the problems to be fixed prior to operation of the spray booth. If the filters are not functioning properly, visible emissions will be present. This will satisfy the periodic monitoring requirement for the visible emission limit for all paint spray booths.

Virginia Metalcrafters will be required to keep records of the monthly and annual throughput of finish materials to each spray booth, certified MSDS sheets for coating used in the black paint spray booth, average VOC content of coatings used in the black paint spray booth, VOC emission rates for the black paint spray booth, particulate emission rates for the black paint spray booth, solids transfer efficiency for the black paint spray booth, control efficiency of the paint arrestor filter system for the black paint spray booth, and the daily filter inspections for each spray booth.

The daily inspections and recordkeeping required by the permit will satisfy the periodic monitoring requirement for the surface coating equipment.

Testing

The permit does not require source tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

Reporting

No specific reporting has been included in the permit for the surface coating operations.

Streamlined Requirements

The black paint spray booth is subject to 9 VAC 5-50-80. This regulation requires visible emissions from the unit to be less than 20% except during one six-minute period in any one hour in which visible emissions shall not exceed 30%. The minor NSR permit requires that visible emissions from the unit not exceed 5% - at any time. In the Title V permit, 9 VAC 5-50-80 has been streamlined. If the black paint spray booth operates in compliance with the standard in the minor NSR permit (5%), then it will also be operating in compliance with 9 VAC 5-50-80.

Woodworking Requirements - Units # 52 and 69

Woodworking operations were discontinued at the end of June 2004. Therefore, the entire woodworking requirements section has been removed.

Hazardous Air Pollutants Requirements

The Surface Coating of Miscellaneous Metal Parts and Products MACT (Subpart MMMM) and the Iron and Steel Foundries MACT (Subpart EEEEE) were promulgated January 2, 2004 and April 22, 2004, respectively. These three MACTs were identified as future applicable requirements. Placeholder language was added in Section VII for Limitations, Recordkeeping and Reporting for The Surface Coating of Miscellaneous Metal Parts and Products MACT (Subpart MMMM) and the Iron and Steel Foundries MACT (Subpart EEEEE).

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within four daytime business hours.

The following sections under General Conditions were updated with current boilerplate language:

- Permit Expiration
- Recordkeeping and Reporting
- Annual Compliance Certification
- Permit Deviation Reporting
- Failure/Malfunction Reporting
- Permit Modification (previously Permit Action for Cause)
- Duty to Pay Permit Fees
- Malfunction as an Affirmative Defense
- Permit Revocation or Termination for Cause
- Asbestos Requirements

STATE ONLY APPLICABLE REQUIREMENTS

Virginia Metalcrafters, Inc. did not identify any state-only enforceable requirements in their application, and all requirements in the state operating permit are federally enforceable. Therefore, no state-only applicable requirements have been included in the permit.

FUTURE APPLICABLE REQUIREMENTS

Virginia Metalcrafters, Inc. did identify the Surface Coating of Miscellaneous Metal Parts and

Products MACT (40 CFR 63 Subpart MMMM) and the Iron and Steel Foundries MACT (40 CFR 63 Subpart EEEEE) as future applicable requirements in their application. Placeholder language has been included in the Hazardous Air Pollutant Conditions section for both of the above MACTs.

INAPPLICABLE REQUIREMENTS

Virginia Metalcrafters, Inc. did identify the Industrial, Commercial and Institutional Boilers and Process Heaters MACT (40 CFR 63 Subpart DDDDD) and the Secondary Aluminum Plants MACT (40 CFR 63 Subpart RRR) as inapplicable requirements in their application. Therefore, these inapplicable requirements have been included in the permit in Section IX.

COMPLIANCE PLAN

Virginia Metalcrafters, Inc. is currently in compliance with all applicable requirements. A compliance plan was included in the initial Title V application, dated May 8, 1998 and has now been completed. The facility is now in compliance with all applicable requirements except the initial notification to the EPA for the Iron and Steel Foundry MACT. This item was listed on their compliance plan on page 20 of their renewal application with an expected completion date of January 31, 2005. The current application, dated November 5, 2004 with additional information dated December 22, 2004, contains a compliance certification.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Table VI. Insignificant Emission Units

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
76	Scotch Marine natural gas-fired boiler	9 VAC 5-80-720 C	-	7.0 mmBTU/hr

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
77	Kewanee 40 HP natural gas-fired boiler	9 VAC 5-80-720 C	-	1.35 mmBTU/hr
7	Natural gas-fired boiler	9 VAC 5-80-720 C	-	0.387 mmBTU/hr
-	Natural gas-fired boiler (showroom)	9 VAC 5-80-720 C	-	0.112 mmBTU/hr
65/66	Natural gas-fired radiant heater for paint curing	9 VAC 5-80-720 C	-	0.15 mmBTU/hr
-	Natural gas-fired heater (large core machine)	9 VAC 5-80-720 C	-	0.175 mmBTU/hr
-	2 Natural gas-fired heaters (small core machines)	9 VAC 5-80-720 C	-	0.121 mmBTU/hr (each)
-	Natural gas-fired bull furnace tourch	9 VAC 5-80-720 C	-	0.5 mmBTU/hr
11, 67	Welding and soldering equip.	9 VAC 5-80-720 B	PM-10	-
59	Antiquing Room	9 VAC 5-80-720 B	Sulfuric Acid Hydrochloric Acid Nitric Acid	-
-	Brass foundry mold and core making	9 VAC 5-80-720 B	PM-10 VOC	-
-	Iron foundry mold and core making	9 VAC 5-80-720 B	PM-10 VOC	-
5	Heat treating oil quench tank	9 VAC 5-80-720 B	VOC	-
-	Machine shop operations	9 VAC 5-80-720 B	PM-10	-

Emission Unit No.	Emission Unit Description	Citation	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
-	Sheet metal shop operations	9 VAC 5-80-720 B	PM-10	-

[1]The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, not included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

Virginia Metalcrafters, Inc. did not submit a request for confidentiality. Therefore, all portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

A public notice regarding the draft permit was placed in the *News-Virginian*, Waynesboro, Virginia, on January 24, 2005. EPA was sent a copy of the draft permit and notified of the public notice on January 20, 2005. West Virginia, the only affected state, was sent a copy of the public notice on January 24, 2005. All persons on the Title V mailing list were also sent a copy of the public notice in letters dated January 24, 2005. EPA's 45-day review period ended on March 9, 2005.

No comments were received.

ATTACHMENTS

A. 2003 Emission Inventory
B. Minor New Source Review Permit issued January 11, 2005
C. Emission Calculations

ATTACHMENT A

2003 Emission Inventory

ATTACHMENT B

Minor NSR Permit and Amendments (dated January 11, 2005)

ATTACHMENT C

Emission Calculations

Virginia Metalcrafters, Inc.
Permit # VRO80518
Potential Emissions - Iron Foundry

PM Emissions

Unit #	Process	Capacity (lb/hr)	Emission Factor[A] (lb/ton)	Control Efficiency (%)	Emission Rate	
					(lb/hr)	(ton/yr)
33A	Sand Processing	2400	3.6	99.0	0.04	0.19
33B	Furnaces (2)	1000	1.5	99.0	0.01	0.03
33C	Tumble Shot Blast	3200	17.0	99.0	0.27	1.19
33D	Degate, Grind, Deburr	3200	17.0	99.0	0.27	1.19
24	Rotary Shot Blast	3200	17.0	99.0	0.27	1.19
31	Metal Casting	1000	4.2	0.0	2.10	9.20
32	Mold Shakeout Operations	1000	3.2	0.0	1.60	7.01

PM-10 Emissions

Unit #	Process	Capacity (lb/hr)	Emission Factor[B] (lb/ton)	Control Efficiency (%)	Emission Rate	
					(lb/hr)	(ton/yr)
33A	Sand Processing	2400	2.5	99.0	0.03	0.13
33B	Furnaces (2)	1000	1.2	99.0	0.01	0.03
33C	Tumble Shot Blast	3200	11.5	99.0	0.18	0.81
33D	Degate, Grind, Deburr	3200	11.9	99.0	0.19	0.83
24	Rotary Shot Blast	3200	11.5	99.0	0.18	0.81
31	Metal Casting	1000	2.1	0.0	1.03	4.51
32	Mold Shakeout Operations	1000	2.2	0.0	1.12	4.91

Notes: Emission rates assume operation at full capacity for 8760 hours per year.

A: Emissions factors from AP-42, Section 12.10, Tables 12.10-3 and 12.10-7

B: Emissions factors from engineering estimate and AP-42, Section 12.10, Table 12.10-9

Virginia Metalcrafters, Inc.
Permit # VRO80518
Potential Emissions - Brass Foundry

PM Emissions

Unit #	Process	Capacity (lb/hr)	Emission Factor[A] (lb/ton)	Control Efficiency (%)	Emission Rate	
					(lb/hr)	(ton/yr)
44A	Furnaces (2)	1600	1.5	99.0	0.01	0.05
42	Shot Blast	3200	17.0	98.0	0.54	2.38
44B	Degate, Grind, Deburr	3200	17.0	99.0	0.27	1.19
19/20	Metal Casting	1600	4.2	0.0	3.36	14.72
19/20	Mold Shakeout Operations	1600	3.2	0.0	2.56	11.21
79	Polishing, Buffing, & Coloring	4000	12.9	94.0	1.55	6.80

PM-10 Emissions

Unit #	Process	Capacity (lb/hr)	Emission Factor[B] (lb/ton)	Control Efficiency (%)	Emission Rate	
					(lb/hr)	(ton/yr)
44A	Furnaces (2)	1600	1.2	99.0	0.01	0.04
42	Shot Blast	3200	11.5	98.0	0.37	1.61
44B	Degate, Grind, Deburr	3200	11.9	99.0	0.19	0.83
19/20	Metal Casting	1600	2.1	0.0	1.65	7.22
19/20	Mold Shakeout Operations	1600	2.2	0.0	1.79	7.85
79	Polishing, Buffing, & Coloring	4000	6.5	94.0	0.78	3.40

Notes: Emission rates assume operation at full capacity for 8760 hours per year.

A: Emissions factors from AP-42, Section 12.10, Tables 12.10-3 and 12.10-7 and engineering estimate

B: Emissions factors from engineering estimate and AP-42, Section 12.10, Table 12.10-9